



**SOUTH AUSTRALIAN SOCIETY OF MODEL
& EXPERIMENTAL ENGINEERS**

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**The official Journal of
The South Australia Society of
Model & Experimental Engineers Inc.**



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(This bulletin is issued for information only)

HAPPENINGS.

A roundup of SASMEE events, news and other things.

Forth coming event.

Saturday the 22nd of June has been nominated as a play day for SASMEE members. The gates will be open from 1pm and shut? Refreshments will be available throughout the day.

This annual event is always popular within the Club as members can enjoy the relaxing atmosphere.

Bunnings Opening.

A team from SASMEE supported the opening of the new Bunnings South Rd complex in the evening of April the fourth 2019.

A presentation was made by our President on behalf of SASMEE for the support provided by Bunnings regarding garden upgrades, painting together with materials and labour.

Members provided SASMEE handouts and answered queries to the public on the Clubs' activities which may have resulted in the increase in applications for membership in recent meeting nights.

A portable up and down track attracted both children and adults in providing rides. See attached photos taken by member Bryan Homann. Many thanks to the Club members who supported the evening.

The Boat Pond.

Due to a lot of good work by a dedicated few the boat pond in recent time has taken on a pristine look. The surface algae is non existent and the water is crystal clear. However, this will only remain so without constant attention and improvements.

Members will recount that there has been numerous trials and suggestions regarding as to how to overcome the pond conditions.

Water wheels providing water movement, dosing with chemicals and the inclusion of fish has combined to provide gradual improvements.

Of recent times club member Rob Ball, a professional environmentalist has made suggestions, which have been introduced, which has added to the overall improvement. Rob's expertise and equipment have been able to define the state of the pond in terms of definitive measurement thus providing applicable water management. cont'd.

The addition of small clumps of selected Australian reeds and rushes placed in the pond are providing natural water filtration, and the fish are keeping the bottom relatively clean. Together with water movement the combination is working. No doubt the winter conditions are not favouring algae growth so testing times will come in the warmer months. The current problem is ducks.! They contaminate both the pool and side surrounds with droppings and upset the fish.

The pond team are seeking practical, no cost, non labour suggestions as to how to discourage ducks from alighting on and around the pond.

Experimental Boat Challenge

This project is alive and well with minor modifications being made to clarify and extend the entry provisions. Members intending to front up to the task are reminded that it will all happen on the January play night 2020. If you seek details, talk to John Foster.

Model Package for Sale

The Club is currently holding a complete set of castings and drawings for a 5" gauge C36 loco. These are for sale, by negotiation, with a SASMEE club member who is residing interstate. The castings and drawings are by Winters. If you are interested, contact Bill Coles.

Polite Reminder,

As Club members we must be ever mindful of our presence in and around the public.

Discussion of club activities, speaking about other members, Club agendas etc and negative comments should not be held within earshot of our patrons. [Best not discussed at all]

The use of in-appropriate language is totally unacceptable.

Our dress code should be in keeping for the occasion and the usual "shed clothes" should be left at home.

With todays` communication aids both the good and bad news can be posted worldwide as soon as it happens.

Our aim must be to provide an ongoing safe and enjoyable experience for those attending. We want them to return.

The Editor

Operating Review.

Graham Gaetjens [Club Auditor] and Mary Homann [Accounts] have been working together in a review and analysis of the Clubs financial operating procedures with the aim of providing a clear direction as regards efficiencies and handling and funding of projects for the longer term. Consultation with various club activity centres form part of their brief. This project is current and ongoing.

Gear Cutting in the Home Workshop.

Article by Bill Coles.

In the current I.C. engine I am building the crank shaft through to the camshafts requires a gear train of 5 gears. 1 X 39t, 1 x 78t and 3 x 26t. These gears are of 48 diametral pitch, [DP is a ratio of teeth to circumference] which is recognised as the smallest gear tooth size before we drop down to watch making sizes.

In using the recognised involute circular form cutters there would be a need to have 3 cutters to do the job. This is due to form corrections being needed to produce the best involute form for smooth rolling tooth contact. As the cutters were called for in DP they are expensive [Quoted at 80 pounds each]. Nowadays, Module [expressed in mm] designated cutters are more common and cheaper. Unfortunately, for a given centre distance Module cutters cannot be substituted for DP.

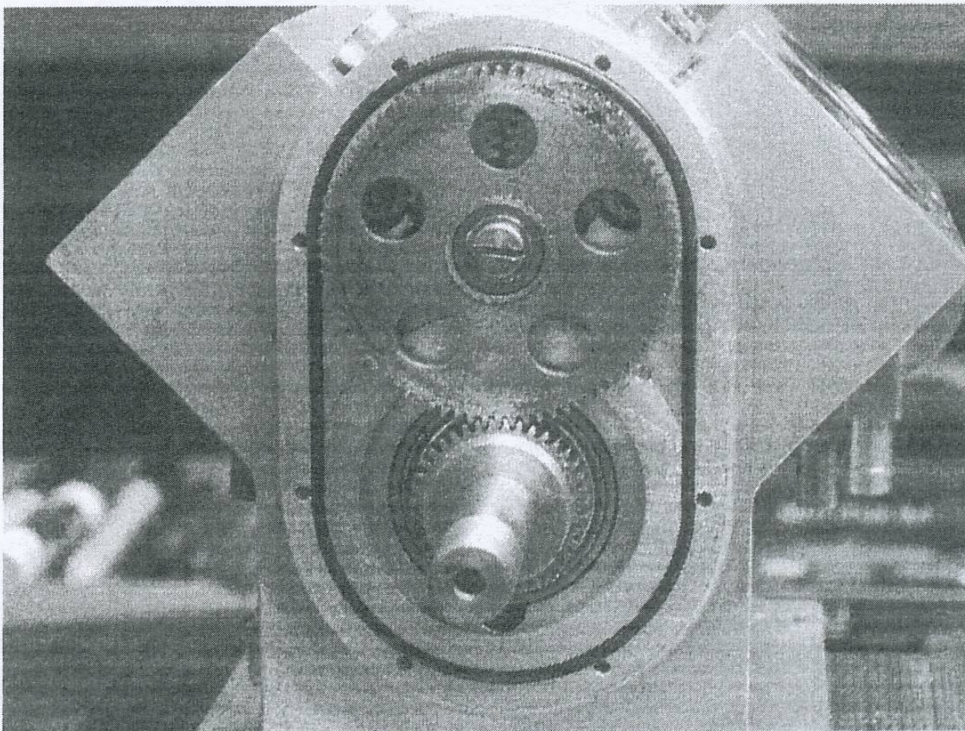
There is a "magic bullet" that overcomes having to use range of circular form cutters and that is to use the hobbing principle. One hob of a given DP will cut a full range of teeth. In an industrial hobbing operation the work revolves in a geared relationship to the rotating cutter while at the same time a cutting feed rate passes the hob through the width of the gear being cut.

In my case I made a rotating cutter passing through the gear blank which was indexed one tooth at a time. In general, tooth profiles in hobs have straight sided teeth, [e.g. a rack form] and rely on the indexing to generate the involute tooth form.

I made the hob from a length of 5/8" silversteel. The rack form was plunged cut with a 29 degree tool to a depth to give a width at the top of the form of 0.0435". The longitudinal pitch of the teeth was 0.0655". This was achieved using a dial indicator attached to the lathe saddle. Hardening was by a gas torch with tempering in the wives oven. Four flutes were cut in the blank prior to gashing the teeth. cont'd.

In practice the hobb was rotating at 220rpm and fed through the blanks at a slow feed rate, using plenty of cutting fluid. The teeth were cut to full depth of 0.047" in one pass. Indexing was using a dividing head with tailstock support. Indexing one tooth at time the 78 tooth gear took about 2 hours. Industrial hobb have a number of teeth which gives a fairly smooth cutting action bearing in mind that they have no front rake clearance. In the case of my small hobb having only 4 cutting faces the actual cut is quite solid and tends to raise burrs which require careful and time consuming tooth by tooth deburring.

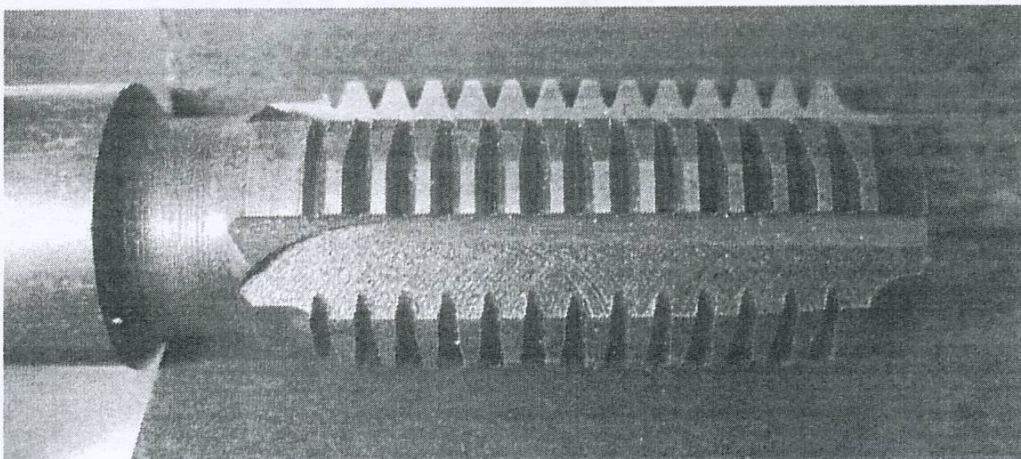
The end result was quite satisfactory with meshing fitting to the calculated centre distances.



The 26 t gears are behind the large gear.

The centre distance between the crank and the centre of the large gear is 1.200"

The black ring is an "O" seal for the timing case cover.



Hobb showing rack type teeth.

SASMEE at Bunnings 4-4-2019





Other Things. By the Editor.

Members may have noticed that the pictures on the Northern wall have been removed. None have been disposed of, they are in the library in the short term. Their removal is part of an ongoing restoration and club room general clean up. The club rooms at times have housed various items that nobody owns, long forgotten objects and documents long out of date on the notice board. Small alterations will be ongoing with the aim of raising the standard of our venue to a higher degree of neatness. .Any problems, See Bill Coles

Be Inspired

If you are looking for a self imposed benchmark, Google:-
www.craftsmanshipmuseum.com

Whist this is an American site there is something for everyone and as you move about the range of projects, descriptions and write-ups they should provide an inspiration for your projects.

1922 M.V. Canfly.

Builder, H.Breaker of Bowness. Built a 28ft Carvel Hull of Mahogany. Beam was 5'6" Owner was a Major E.H. Patterson. He fitted a Rolls Royce Hawk 6 cyl. aero engine. 7.4 litres, 85bhp at 1350 rpm. The engine was modified by fitting a heavy flywheel in place of the airscrew, plus a starting handle and a modified water pump. A starting magneto and primer from a Rolls Royce Eagle Engine were also fitted.

{The Rolls Royce Hawk engine was made in 1917 for the Royal Naval Air Service airship, SST3.}

The boat had a straight drive with no gearbox and it was essential to turn her around to face into the lake before using the crank handle. Unless skilfully handled she must have been a menace to all other craft on the lake as the only means of stopping her was to stop the engine and wait for her to drift to a halt.

To provide more control a Kitchen reversing rudder was fitted in the 1920 but was later discarded as this reduced the boat's speed.

With a top speed of 30mph it dominated the Lakes activities for some years.

Value of a Good Vocabulary

I called an old school mate and when asked what he was doing he replied that he was working on the "Aqua-thermal treatment of ceramics, aluminium and steel under a constrained environment.

I was impressed.!

On enquiring further . I learned that he was washing dishes with hot water under his wife's supervision.